
Dividing Exponents

Rule: $\frac{x^a}{x^b} = x^{a-b}$

Example: $\frac{x^6}{x^4} = x^{6-4} = x^2$

$\frac{x^3}{x^{-2}} = x^{3-(-2)} = x^5$

Divide the following polynomials.

1. $\frac{x^3}{x}$

11. $\frac{18c^3}{-3c^2}$

2. $\frac{9a^3b^5}{-3ab^2}$

12. $\frac{-48c^2d^4}{-8cd}$

3. $\frac{d^5}{d^3}$

13. $\frac{22y^5z^8}{2yz^7}$

4. $\frac{b^{14}c^9}{b^5c^4}$

14. $\frac{28x^2y}{-4x^2}$

5. $\frac{-12m^5}{6m}$

15. $\frac{-3p^8}{6p^2}$

6. $\frac{15k^7r^3}{-3k^5}$

16. $\frac{42r^{13}}{-7r^8}$

7. $\frac{9a^{13}}{a^3}$

17. $\frac{(6x^3)(4x^9)}{-12x^{10}}$

8. $\frac{(3xy)(4x^2y)}{-6xy^2}$

18. $\frac{21k^9}{(3k)(7k^4)}$

9. $\frac{-14c^{15}d^3}{-2c^9d}$

19. $\frac{4x^2y^3z^4}{2xy^2z^3}$

10. $\frac{(5k)(-8k^5)}{10k^3}$

20. $\frac{(121c^3)(-c^8)}{11c^5}$

Products of Polynomials

$$2y(y - 5) = 2y^2 - 10y$$

Use the distributive property to multiply these polynomials.

1. $3x(x - 3)$

11. $-3x^2(4x^2 - 3x + 3)$

2. $2xy(2x - 3y)$

12. $5b(4b^3 - 6b^2 - 6)$

3. $4a(2a + 4)$

13. $x(x^2 + x + x)$

4. $-5y^2(7y - 8y^2)$

14. $(3x^4 - 5x^2 - 4)(-3x^3)$

5. $-5ab(6a - 4b)$

15. $3y(y^2 - 3y + 2)$

6. $a(x + 1)$

16. $-4x^2(5 - 3x + 3x^2 + 4x^3)$

7. $y(y - 4)$

17. $3b(4b^3 - 12b^2 - 7)$

8. $5b(3 - b)$

18. $-4x^2(3x^3 + 8x^2 + -9x)$

9. $4x(x - 3)$

19. $(-9x^3)(3x^2 - 1)$

10. $4x^2(3x^2 - x)$

20. $(3x^2 - 6x)(-x)$